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Data analysis on ventilation systems for energy screening

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When energy consultants perform energy screening, they spend many hours inspecting the specific building and collecting data and specifications on installed equipment and the building envelope. Based on this information the consultant advises the building owner about energy saving measures and their savings potential.

By using clamp on temperature and power sensors (Figure 1) (1), it is possible to detect in detail how building systems actually operate without spending hours on inspection and without connecting to the BMS (Building management system). This data can help answer the questions “Is the system operated in accordance with the actual usage?” or “is the performance of the building components as expected?” (2)

The presentation discuss and shows some results from the ESNAP project (3) externally funded by the Danish Energy Agency. We will present some evaluation of the performance – and modeling of the system and its components by using one airflow measurement together with non-intrusive power and temperature measurement of a ventilation system. An ex. in Figure 2 on power dynamics



Figure 1

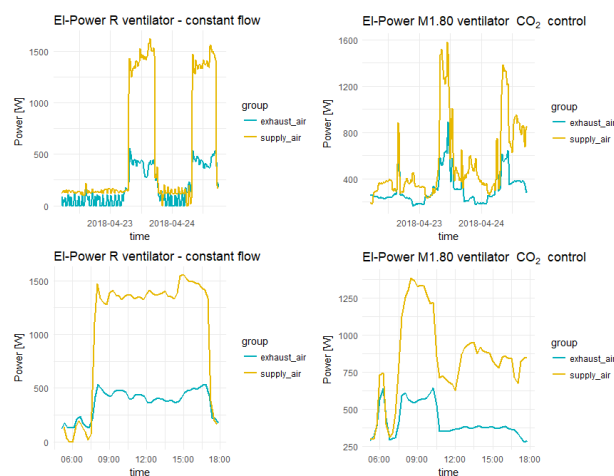


Figure 2

References:

1: https://www.remoni.com/media/1422/data-sheet_powermonispot_ver_200.pdf

2: A review of Methods to match building simulation models to measured data. Authors: Daniel Coakly, Paul Raftery, Marcus Keane, Journal Renewable and Sustainable Energy Reviews p 123 – 141 2014

3. ESNAP Bo Eskerod Madsen (REMONI), Ole Schultz, Per Christensen(DTU Diplom),Michael Dahl Knudsen (AU),Jakob Nørby (Danish Energy Management) 2018-2019.